

## Clinical Commentary

## Fibromatous epulis and peripheral odontogenic fibroma in horses

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Corresponding author email: arh207@cam.ac.uk**Keywords:** horse; cancer; tumour; neoplasia

## Summary

**Fibromatous epulis is a rare tumour in horses which is analogous to the same condition in dogs and peripheral odontogenic fibromas in man. The nomenclature is varied throughout the veterinary literature, but these tumours are most correctly known as peripheral odontogenic fibromas. Although these lesions are benign, they have a high recurrence rate in other species, so wide local excision is important to give the best possible prognosis.**

## Clinical commentary

The oral mucosa is constantly exposed to a variety of stimuli and can develop a complete spectrum of disease, from developmental, reactive and inflammatory to neoplastic. Chronic trauma can induce inflammatory changes, leading to the development of granulation tissue that then proliferates into a tumour-like lesion known as reactive hyperplasia. All pedunculated and sessile gingival lesions have been designated as 'epulis', with an epulis being a nonspecific, descriptive term for a benign, locally exophytic growth of the oral mucosa (Gardner and Baker 1991). The terminology can become confusing, with ossifying epulis, fibromatous epulis, fibroosseous epulis and peripheral odontogenic fibroma being used interchangeably throughout the veterinary literature. Masses in the oral cavity that are derived from the periodontal ligament are most accurately called a peripheral odontogenic fibroma, partly to avoid confusion with the human condition known as fibrous epulis, which is reactive, localised inflammatory hyperplasia rather than a truly neoplastic lesion (Manabe *et al.* 2019), and partly because more recent small animal veterinary literature has recognised that the peripheral odontogenic fibroma described in the human literature is directly analogous to the veterinary condition, and therefore preferentially use this terminology (Gardner and Baker 1991; Fonseca *et al.* 2014; Khot *et al.* 2017; Wingo 2018). Fibromatous epulis will therefore be referred to as peripheral odontogenic fibroma (POF) for the rest of this discussion.

Peripheral odontogenic fibroma is extremely common in dogs and are occasionally seen in cats, but is very rare in horses. POF appears to originate from the periodontal ligament, arising in the soft tissue adjacent to a tooth, and is covered by epithelium. They are generally nonpainful but may cause discomfort if the overlying epithelium becomes inflamed and ulcerated. They often become large and may interfere with mastication due to their space-occupying nature, which may be the first clinical sign observed by owners. They are microscopically characterised by a well-vascularised, dense stroma that is populated by cells with abundant collagen fibrils that resemble the periodontal

ligament. The main differential diagnoses for POF are ameloblastoma (and other odontogenic neoplasms) and non-neoplastic growths such as gingival fibrous hyperplasia.

In human subjects, although reactive hyperplasia and gingival growths are common, peripheral odontogenic tumours are rare (Khot *et al.* 2017). The most commonly diagnosed peripheral odontogenic tumour in people is the peripheral odontogenic fibroma (Khot *et al.* 2017). These lesions have a strong predisposition towards the incisor region (Ritwik and Brannon 2010), similar to that described in the Campolina horse in the case report by Schade *et al.* (2021). It is thought that breakdown of the dental lamina is more likely to leave odontogenic epithelial remnants in this region, leading to the increased incidence of POF in this region in people (Ritwik and Brannon 2010). However, lesions have been described in the premolar and molar regions in human subjects, albeit less commonly than in the incisor region, so these lesions may occur in any location and are seen in the mandible and maxilla with equal frequency (Ritwik and Brannon 2010). The small number of cases described in horses makes it impossible to draw any definite conclusions about any possible predilection sites, although it is interesting to note that these lesions have been described in both the incisor region and in front of the premolars in the mandible of horses (Hablolvarid *et al.* 2012; Schade *et al.* 2021).

Peripheral odontogenic fibromas are most commonly diagnosed in middle-aged to older people and are benign, slow-growing, exophytic lesions with the potential for recurrence following excision (Gardner and Baker 1991; Khot *et al.* 2017). In general, gingival lesions have a tendency to recur which may be due to incomplete excision or due to ongoing local irritation (Kashyap *et al.* 2012; Khot *et al.* 2017). Only a small number of cases have been reported in the human literature; of those, the recurrence rate was 50% (Ritwik and Brannon 2010). There are histological variables that appear to be associated with the risk of recurrence of peripheral odontogenic fibromas. Budding of the basal cells appears to be associated with an increased risk of recurrence, and the presence of calcification in opposition to odontogenic epithelial rests appears to be associated with a reduced risk of recurrence (Ritwik and Brannon 2010). Due to the small number of cases reported in the equine literature, it is not possible to make any inference as to the likelihood of histological variables being associated with recurrence of the lesions, and the description of the histological findings in the reported cases is minimal. However, it would be interesting to note the presence or absence of these specific features in any future cases. In cats, a small case series has noted that radiotherapy gave long-term control of POF, in contrast to surgery alone where recurrence is common (Moore *et al.* 2000). It may therefore be useful to consider radiotherapy

of these lesions in horses as an adjunct to surgical excision. To the author's knowledge, there are no reports of radiotherapy for the treatment of POF in a horse, but it has been described for treatment of other oral and sinonasal lesions such as juvenile ossifying fibroma (Robbins *et al.* 1996; Orsini *et al.* 2004; Witte 2014).

Where POF is diagnosed in a horse, similar to in other species, complete excision is required to give the best prognosis. Advanced imaging techniques such as computed tomography could be considered to more thoroughly evaluate the underlying bone, as more radical resection may be required to reduce the risk of recurrence. The case described by Schade *et al.* (2021) described recurrence of the lesion between 1 and 3 years post-resection; other equine cases have only had short-term follow-up. In human patients with POF, it is recognised that long-term follow-up is required due to the relatively high risk of recurrence which may occur many years after the initial surgical resection (Khot *et al.* 2017). It is therefore prudent to warn owners of the possibility of late recurrence and to perform wide local excision, possibly with the addition of adjunctive radiotherapy.

### Author's declaration of interests

No conflicts of interest have been declared.

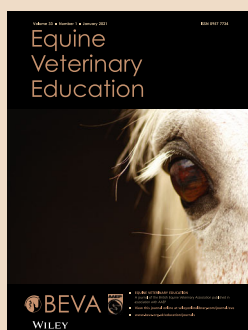
### Ethical animal research

Ethical approval not required for this clinical commentary.

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